

Application No.:09/618,741
Response dated August 7, 2003
Reply to Office Action of April 8, 2003

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (cancelled)
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (cancelled)
6. (cancelled)
7. (cancelled)
8. (currently amended) The method of claim ~~6~~ 32, wherein ~~the mixing agitating the mixture~~ comprises rotating the chamber.
9. (cancelled)
10. (currently amended) The method of claim ~~6~~ 8, further comprising:
forming the aluminum oxynitride into a transparent structure.
11. (original) The method of claim 10, wherein forming the aluminum oxynitride comprises:

Application No.:09/618,741
Response dated August 7, 2003
Reply to Office Action of April 8, 2003

forming a green body comprising the aluminum oxynitride; and
sintering the green body.

12. (original) The method of claim 11, further comprising:
isostatically pressing the sintered green body under heat.

13. (currently amended) The method of claim ~~6~~ 32, wherein the aluminum oxynitride
comprises $\text{Al}_{23-1/3x}\text{O}_{27+x}\text{N}_{5-x}$, where $0.429 \leq x \leq 2$.

14. (cancelled)

15. (cancelled)

16. (cancelled).

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

25. (cancelled)

26. (cancelled)

27. (cancelled)

28. (cancelled)

29. (cancelled)

30. (cancelled)

31. (cancelled)

32. (new) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber having a predetermined temperature;

(b) introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting the aluminum oxide particles and carbon particles introduced into the provided chamber while mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the predetermined temperature of the furnace being maintained substantially constant at the provided temperature during conversion of the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) removing the aluminum oxynitride from the chamber

33. (new) The method recited in claim 32 wherein the predetermined temperature is a temperature equal to or greater than 1700 °C.

34. (new) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber having a predetermined temperature;

(b) introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting the aluminum oxide particles and carbon particles introduced into the provided chamber while continuously mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the predetermined temperature of the furnace being maintained substantially constant at the provided temperature during conversion of the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) removing the aluminum oxynitride from the chamber;

35. (new) The method recited in claim 34 wherein the predetermined temperature is a temperature equal to or greater than 1700 °C.

36. (new) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber having a predetermined temperature;

(b) continuously introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting aluminum oxide particles and carbon particles continuously introduced into the provided chamber while continuously mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the temperature of the furnace being maintained substantially constant at the provided

Application No.:09/618,741

Response dated August 7, 2003

Reply to Office Action of April 8, 2003

predetermined temperature during conversion of the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) continuously removing the aluminum oxynitride from the chamber.

37. (new) The method recited in claim 36 wherein the predetermined temperature is a temperature equal to or greater than 1700 °C.